

Accomplished since last Nov

1. Core team fixed convection and re-run GISS/FVGCM with OH from Mich.
2. Mich. compared aerosol simulations with 3 met fields with observations
3. Incorporated UMaer microphysics model into GMI and run with DAO
4. Finished pre-industry runs with pre-industry emissions for all three met fields (using present-day OH)
5. Michigan calculated aerosol direct forcing for 3 met fields
6. Incorporated cloud drop activation parameterization into GMI model
7. Subgrid vertical velocity calculations using empirical aerosol droplet correlation
8. 2-D microphysical intercomparison between AER and UMaer aerosol microphysics models

List of tasks (short term):

1. Finish aerosol calculation paper and submit (UM) (~ 1 month)
2. Finish the FVGCM and GISS aerosol microphysical runs (core team) (~ 1 month).
3. Michigan to compare RH in FVGCM/GISS fields with satellite obs—consider comparison with ECMWF reanalysis fields (UM) (~ 1 month)
4. Re-run DAO met fields with offline OH, NO₃, O₃, HO₂, JH₂O₂ from respective trop. chemistry run (core team) (~ 1 month)
5. Compute pre-industrial OH fields from tropospheric model and do pre-industrial aerosol run with DAO using the UM pre-industrial emissions and calculated pre-industrial OH fields (core team) (~ 1 month)
6. Repeat #4 but for GISS & FVGCM met fields (~ 2 months) (core team).
7. Double check the aerosol fields (SO₄) if impacted too much from updated OH fields (UM) (~ 2 months)
8. Aerosol 1st indirect forcing calculations with DAO (Gatech) (~ 2 months)
9. Write-up 2-D aerosol microphysical intercomp. paper (AER) (~ 3 months)

List of tasks (longer term):

1. Evaluation UMaer aerosol microphysical runs for 3 met fields, write-up paper and submit it (UM) (~ 6 months)
2. Add non-sulfate aerosol types into AER microphysical model (AER) (~ 6 months)
3. Consistent emission fields with met fields (dust and sea salt) (core team) (~ 6 months)

Long term goals:

1. Incorporate our aerosol simulations in the tropospheric model offline fields (core team)
2. Add AER, and TOMAS (from Peter Adams) microphysics models to GMI (core team)
3. Update met fields to include more quantities relevant for aerosol/cloud interactions (e.g., TKE for diagnosing updraft velocity) (core team)
4. Couple aerosols & clouds with the tropospheric chemistry online (core team)
5. Update secondary organic aerosol predictions in the GMI – assess the potential for long range transport of these species (everybody)
6. Incorporate AER aerosol in COMBO model (AER, core)
7. Updating the UMaer aerosol microphysics to incorporate variable distribution width (UM)